

Increasing Incidence of Nalidixic Acid-Resistant Non-Typhi *Salmonella*: FoodNet and NARMS 1996-2002

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Introduction: *Salmonella* is a major cause of foodborne illness. Antimicrobial treatment is usually not essential but may be lifesaving. Resistance to nalidixic acid, an elementary quinolone, is associated with a decreased susceptibility to ciprofloxacin, a fluoroquinolone. Fluoroquinolones are used in adults with *Salmonella* infections and in food animal production. Emergence of nalidixic acid-resistant *Salmonella* signals the potential for emergence of ciprofloxacin resistance.

Methods: From 1996-2002, state health departments participating in the National Antimicrobial Resistance Monitoring System (NARMS) forwarded every tenth human non-Typhi *Salmonella* isolate to CDC for susceptibility testing. Nalidixic acid resistance was defined as a MIC \geq 32 μ g/ml. NARMS data were used to determine the change in the prevalence of nalidixic acid resistance from 1996 to 2002. FoodNet conducted active surveillance at clinical laboratories to ascertain all laboratory-diagnosed *Salmonella* infections. FoodNet data were used to determine the change in incidence of non-Typhi *Salmonella* from 1996 to 2002. FoodNet and NARMS data were merged to estimate the change in incidence of nalidixic acid-resistant non-Typhi *Salmonella* from 1996 to 2002.

Results: From 1996-2002, 1.3% (65/4853) of non-Typhi *Salmonella* isolates submitted to NARMS from FoodNet sites were nalidixic acid resistant -- 0.7% (4/588) in 1996 compared with 1.7% (13/760) in 2002. The annual modeled incidence of non-Typhi *Salmonella* infections in FoodNet did not change substantially from 1996 (15.7/100,000) to (14.8/100,000) in 2002. Multiplying the modeled FoodNet non-Typhi *Salmonella* incidence by the NARMS proportion of nalidixic acid-resistant isolates from the FoodNet sites, the estimated incidence of nalidixic acid-resistant non-Typhi *Salmonella* infections increased from 0.11/100,000 in 1996 to 0.25/100,000 in 2002.

Discussion: These data emphasize the need for additional efforts to reduce the emergence of fluoroquinolone-resistant non-Typhi *Salmonella*.